

throughout with cavities and many pleural adhesions. Left lung clear except for a few calcified glands at hilus.

On June 8, 1920, operation under local anaesthesia, a parasternal incision was made on right side. Extrapleural resection of parts of first to fifth ribs inclusive, closure of muscles and skin. No drainage. Patient made an uneventful recovery, leaving hospital in two weeks. Her general health gradually improved. Sputum decreased and temperature curve improved. Pressure bandage applied.

On September 2, 1920, she was referred back again by Dr. Kalb for the second stage of operation. The roentgenogram showed considerable collapse of the lung but not sufficient to obliterate the cavities. She was not coughing as much and the temperature had been considerably lower since the first stage of the operation. There was practically no respiratory movement of the right chest and no bony union at points of resection. Being quite apprehensive about the operation, a combination of morphine, procain and gas oxygen anaesthesia was used. A paravertebral incision exposing angles of fifth to eleventh ribs being made, sections varying from two to four inches were removed in each instance, always including the angle, without opening the pleural cavity.

She left the hospital in a week and made a good recovery and, excepting a slight infection of lower end of incision and some neuralgia in shoulder, had no post-operative complications.

In a letter dated November 24, 1920, she says: "My temperature is seldom above 99° these days, sometimes normal all day."

Her recovery has progressed satisfactorily up to the present time and the outlook is good.

#### Summary

1. The extrapleural rib resection under local anaesthesia is a comparatively safe operation.
2. The patient with large cavities and toxic conditions from pus absorption, still has a chance even if artificial pneumothorax has failed.
3. The proper selection of cases for operation is of more importance than anything else and requires careful study.
4. In some instances it is better to divide the operation into more than one stage.
5. Extrapleural resection of the angles of the ribs offers the best means of collapsing the lung.

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## URINARY PUS CELL COUNT \*

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Routine laboratory reports concerning pyuria are often fallacious and the interpretations of them frequently lead to wrong opinions, not only from a viewpoint of diagnosis or prognosis, but in segregating cases that either are or are not worthy of serious study.

In the urine the importance of a small amount of pus originating from the glands or mucus membranes of the lower urinary segment or from the genitalia may be nil, yet upon centrifuging such a specimen many corpuscles will be demonstrated that may wrongly stimulate the notion of severe infection. Such interpretations are further induced because the urine submitted for examination has not been properly collected and inspected.

Gross infections are quite apparent and usually the microscopic search for pus cells is negligible, but the finer infections, such as pyelitis, pyelonephritis, obscure prostatitis and vesiculitis, and the remote urinary infections of children and young adults, are problems the course of which becomes more complicated and result of treatment more uncertain without absolute microscopical control of the actual number of white corpuscles.

A characteristic of renal pyuria is that the exhibition of cells is consistent and constant. Urinary pus may be decreased somewhat by rest, and increased by exercise, cold, and alcohol, but with unusual exception, infection once chronically established is continuous and the variation in intensity of this is slight.

A drop of pus in a centrifuged specimen of 100 mils or ten drops in a like volume will, in a pipetted deposit on a slide, show the same number of cells. The microscopic examination of 1 mil or 10 mils of pus in concentration will furnish such crowded fields that they cannot be told apart. The amount of pus produced by a urethral shred collected by pipette from the bottom of a centrifuge tube will, by comparison, show as many cells under a cover glass as a like quantity of pure pus similarly obtained.

Because of the consistent quality of a given specimen of urine 1 c.mm. taken from 10 mils or 100 mils will give the same number of cells.

Until recently we have been counting a definite number of fields and making our estimate on the average number of cells per field in uncentrifuged specimen. This is not a precise method, as cover glass pressure and fluid dispersion cannot be controlled.

Therefore, as a means of more or less accurate diagnostic and prognostic aid, the following method has been adopted. The technique is both rapid and simple, and the count is made without centrifuging.

The fresh specimen of urine is thoroughly shaken and a portion drawn into a red blood cell pipette. This pipette is chosen because it facilitates a final agitation of the fluid. A Thoma Zeiss counting chamber is then filled with the fluid in the method used for counting blood cells. The eyepiece of

\* Read before the Fiftieth Annual Meeting of the Medical Society of the State of California, Coronado, May, 1921.

